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ABSTRACT

This programmatic series of three studies compares, in British and Hungarian secondary schools, two contrasting conceptualizations of motivation and successively relates them to approaches to learning and studying and then to indices of self-concept and attributions of success and failure. The first conceptualization was developed in Hungary and involves three domains of school motivation: (1) affective; (2) cognitive; and (3) moral. The first study explored the factor structure in the two countries of an inventory designed to operationalize this first set of concepts. The second conceptualization focused on intrinsic, extrinsic and achievement factors as well as fear of failure. In research at the university level, these forms of motivation have been found to relate to qualitative differences in approaches to learning and studying. The second study used an extended inventory to investigate the interrelationships between the two conceptualizations of motivation and approaches to learning and studying. Finally, an instrument was developed to assess students' attributions of success and failure and the feelings associated with those attributions. Factor analysis indicated identical factor structures in all of the instruments developed for the two countries. The analyses enabled a more complete mapping of the components of school motivation to be achieved. Eleven tables are included. (Author/TJH)

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Paper for AERA Annual Meeting in New Orleans, April, 1988.

MOTIVATION, ATTRIBUTIONS, AND APPROACHES TO LEARNING IN BRITISH AND HUNGARIAN SECONDARY SCHOOLS

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Abstract

This programmatic series of studies compares, in British and Hungarian secondary schools, two contrasting conceptualisations of motivation and successively relates them to approaches to learning and studying and then to indices of self-concept and attributions of success and failure.

The first conceptualisation was developed in Hungary and involves three domains of school motivation - affective, cognitive, and moral. The first study involved exploring the factor structure, in Britain and Hungary separately, of an inventory designed to operationalise this first set of concepts. The second conceptualisation used well-established components of academic motivation - intrinsic, extrinsic, achievement, and fear of failure. In research at university level these forms of motivation have been found to relate to qualitative differences in approaches to learning and studying. The second study used an extended inventory to investigate the inter- relationships between the two conceptualisations of motivation and approaches to learning and studying. Finally, an instrument was developed to assess students' attributions of success and failure, and the feelings associated with those attributions. In the final study this instrument was administered together with measure of self-concept and the previous inventory.

Factor analyses showed almost identical factor structures in all the instruments developed, in spite of the contrasting educational and social systems in the two countries. There was little overlap in the factor structures of the three main conceptualisations, although the factors were generally in line with those anticipated on theoretical grounds and from previous research. The analyses enabled a more complete mapping of the components of school motivation to be achieved. Moreover, interesting relationships between motivation and the attributions and feelings associated with success and failure were established which showed differences between pupils high and low on motivation and self-esteem.

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Introduction

The concept of motivation was originally introduced as a way of explaining differences in academic achievement in terms of the amount of effort students typically invest in their school work. Work on the conceptualisation and measurement of school or academic motivation has developed along a number of contrasting theoretical and empirical fronts (Entwistle, 1987) which has led to an unfortunate lack of comparability between findings from different studies. There is thus a need for research which is theoretically more eclectic which uses measurement instruments

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derived from contrasting conceptualisations and attempts to identify the strongest recurring dimensions within those different instruments. In this way it should be possible to develop a more coherent description of the multifaceted concept of motivation in a form which can be used in research to relate to different ways of going about learning and in practice to help teachers understand the variations in effort shown by their students.

Much of the initial theoretical work was carried out in the United States and has been summarized by Ball (1977). He was concerned at the lack of co-ordination between the various theories and measurement instruments and commended an interesting integrative study that had been reported by Chiu (1967). Chiu had investigated "the conceptual and empirical aspects of academic motivation" by drawing on a wide range of existing inventories to produce 16 motivational sub-scales which were given to high school students. Factor analysis produced a very similar pattern of five factors for both boys and girls: positive orientation to school learning; need for social recognition; curiosity; failure avoidance; and conformity.

Unfortunately their has been little sign in the literature of further attempts at integration, although there have been impressive developments in relating motivation to the social context of learning and discussing the importance of students' attributions of success and failure (Ames & Ames,1984; Covington,1983). The majority of measurement instruments have, nevertheless, concentrated on cognitive aspects of school motivation although there are good theoretical reasons for believing that strong emotional components are associated with it.

In this paper a programmatic series of studies are reported which explore further the dimensionality of school motivation through factor analyses of a wide range of inventory sub-scales which include both affective and moral, as well as cognitive, components. In view of the parallel research area which attempts to explain the effort put into school work in terms of students' attributions, it was decided also to develop a questionnaire to estimate students' attributions and feelings related to of success and failure, and to see how these related to the motivational components.

The three studies reported here represent a sequential development over some eight years during which time three different instruments have been developed, modified, and carefully translated into either English or Hungarian. Three separate samples were drawn from secondary schools in Britain and Hungary to investigate the factor structures of the inventories, and to compare the mean scores of students in these contrasting educational and social systems.

Conceptualisations of motivation and attribution

Conceptualisation of school motivation

The initial conceptualisation of school motivation in Hungary was developed by Kozeki (1985), based on an extensive set of interviews with children and their parents and teachers over a ten-year period. In all, over 1000 interviews were conducted before the present formulation of his theory was achieved. The content analysis of the interviews suggested that nine distinct dimensions of school motivation could be identified in three

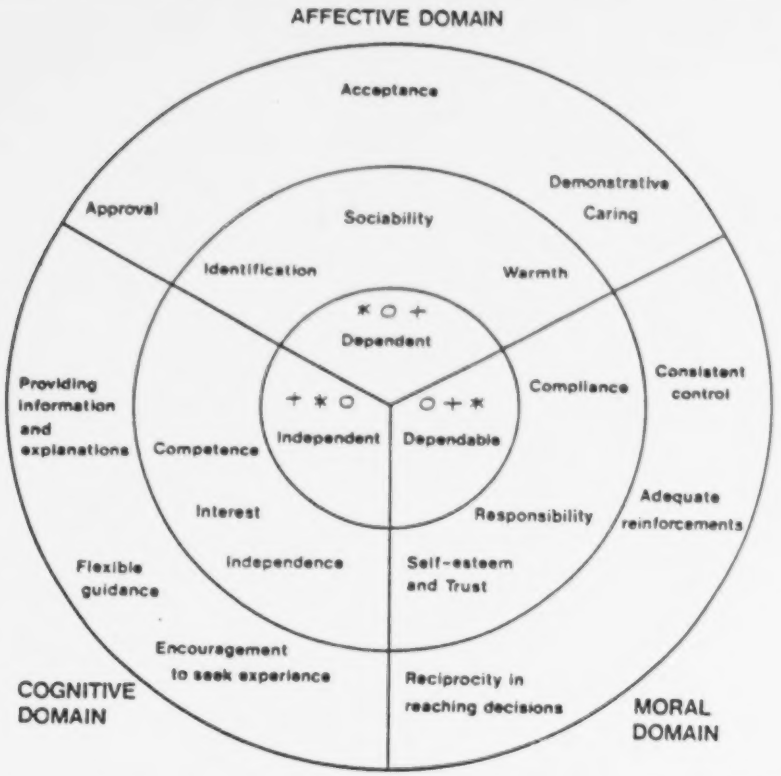
main domains - affective, cognitive, and moral. The individual dimensions were chosen to represent the most readily distinguishable aspects in the domains found in the interview comments (see Table 1).

Table 1 Kozeki's Nine Motivational Categories
(adapted from Kozeki & Entwistle, 1984)

Label	Description of main sources of motivation
Affective Domain	
Warmth	Encouragement and interest actively shown by parents
Identification	Feeling empathy with teachers and wanting to please them
Sociability	Enjoying collaborative work and activities with peers
Cognitive Domain	
Independence	Satisfaction from working things out without help from others
Competence	Rewards from a recognition of developing knowledge and skills
Interest	Enjoyment derived from ideas
Moral Domain	
Trust	Satisfaction from doing things thoroughly and well
Compliance	Preferring the security of behaving according to defined rules or norms
Responsibility	Accepting the consequences of actions and monitoring own behaviour accordingly

The starting point of the theory is within social learning theory. The basic idea is that children's behaviour is shaped by the rewards and punishments or corrective comments of their parents and teachers. Kozeki points out that the rewards offered by adults can be classified in terms of three main domains. Adults may use the emotional rewards of showing interest, concern, and love. Alternatively, they may emphasize rewards related to the development of intellectual competence or, again, they may reward behaviour which complies with their own rules, approved moral precepts, or accepted social conventions. Contrasting child-rearing practices can be shown to give a different balance of rewards in these three areas, and teachers show similar patterns of rewards (Kozeki, 1985). Kozeki argues that children develop contrasting sets of preferences for rewards, depending on their temperament and experience. As a result, children in school exhibit what can be termed *motivational styles* - a different balance of preferences between the three domains. The three most distinctive styles represent respectively dependent, independent, and dependable behaviour, and the way in which these behaviours are thought to be influenced by parents and teachers is indicated in outline in Figure 1 and described fully elsewhere (Kozeki, 1985).

Figure 1 Motivational Categories, Domains and Styles (from Kozeki, 1985)



Conceptualisation of academic motivation and approaches to learning

The starting point of the second conceptualisation of academic motivation was research into the selection of pupils for secondary schools in Scotland. Part of that study involved the development of an inventory to measure academic achievement motivation (Entwistle, 1968) which was influenced by the theoretical ideas of Atkinson and Feather (1966). This inventory was subsequently developed further for use with university and college students and extended to cover study methods as well (Entwistle & Wilson, 1970; Entwistle and Entwistle, 1970).

Although the scale of motivation was intended to be unidimensional, subsequent factor analyses (Entwistle, 1975) suggested that there were at least five sub-scales related to motivation and study methods. These involved an organised and efficient approach to studying, motivation related to vocational relevance, motivation based on interest in the subject matter, achievement motivation or hope for success, and fear of failure.

In a subsequent study (Entwistle and Wilson, 1977), marked differences between students were identified both by cluster analysis and by interview. From these analyses, it appeared that students of differing personality and motivational types would approach studying in very different ways (Entwistle, Thompson & Wilson, 1974). The interviews, in particular, highlighted how different were students' subjective perceptions of what were, objectively, comparable sets of experiences, and also highlighted the need to identify, in future research, the relationships between motivation and approaches to studying.

The conceptualisation of contrasting approaches to studying became possible through the work of Marton (1976; Marton & Saljo, 1984), Pask

(1976) and Biggs (1978). Allying their work to the findings described above, an *Approaches to Studying Inventory* (Entwistle, Hanley & Hounsell, 1979; Entwistle & Ramsden, 1983) was developed for use with university students. Table 2 lists the main dimensions covered by this inventory as subsequently adapted for use in secondary schools (see below).

Table 2 Categories within Orientations to Studying

Label	Description of Category
Meaning Orientation	
Deep Approach	Intention to understand, vigorous interaction, attempts to relate to previous knowledge
Holist Style	Preference for learning by seeing the overview, using analogies and relating to experience
Intrinsic Motivation	Effort created by interest in the content
Reproducing Orientation	
Surface Approach	Intention to carry out teachers' instructions without personal involvement by memorising
Serialist Style	Preference for step-by-step, tightly structured learning, concentrating on details and logic
Fear of Failure	Effort derived from anxiety about assessment
Instrumental Motivation	Effort directed towards obtaining qualifications
Achieving Orientation	
Strategic Approach	Intention to obtain highest possible grades by whatever means or learning process
Conscientiousness	Effort directed towards self-satisfaction
Hope for Success	Effort based on competition and self-confidence

The research on university students showed clearly that contrasting approaches to learning (Marton & Saljo, 1984) were associated with different forms of motivation (Entwistle, 1988). Three 'orientations to studying' were identified which represented factors combining learning processes with associated forms of motivation (Entwistle & Ramsden, 1983). The first of these, *meaning orientation*, brought together deep approach with intrinsic motivation, and also hope for success. In the *reproducing orientation*, surface approach was linked with fear of failure, supported by instrumental motivation towards narrowly vocational goals. Finally, the *achieving orientation* showed strategic approach associated mainly with hope for success, but also with instrumental motivation. Three very similar dimensions describing studying were identified independently by Biggs (1978, 1987) using a different inventory and in an Australian setting.

Conceptualisation of attributions and feelings of success and failure

Rotter (1966) introduced the idea of locus of control which suggested that it was important to explore the ways in which people explained experiences of success and failure. He distinguished between 'externality'

and 'internality' - the identification of causes of behaviour in the external situation or internally, under the individual's own control. De Charms (1968) explored a distinction between 'origin' and 'pawn' which similarly locates the attributed causes of achievement behaviour. Since then a substantial research literature has developed which has identified a variety of attributions commonly used by people when asked to account for their relative success or failure in carrying out tasks in academic or in everyday situations. Heider (1958) identified the most frequent attributions and these have been extended and systematised by Weiner (1984). It appears that the major internal attributions made can be categorised into judgements about the individual's own *ability*, the amount of *effort* put into the work, or the *strategy* adopted. External attributions typically refer to bad *luck*, the *difficulty* or inappropriateness of the task, or *unfairness* on the part of the person judging the outcome.

Among the three main forms of internal attribution, an important distinction can be made in their relative stability (Weiner,1984). To attribute failure to effort or to strategy means that next time, with more effort or with a better strategy, success may be possible. To explain failure in terms of lack of ability, however, carries with it an implicit expectation of continuing failure on similar tasks. Effort and strategy can be varied, but ability cannot be changed at will. This creates a painful dilemma for some low ability pupils. If they do badly, the teacher will often exhort them to 'try harder' - to use more effort. But if they do try harder and still fail, they are forced to face up to a more painful attribution. Their ability, and so their 'self-worth', is under threat (Covington,1983).

There seems to be a conceptual link between the ideas of attribution and those of self-concept (Coopersmith,1959). It is also clear from the discussions of both self-concept and attribution that strong feelings are associated with experiences both of success and failure and varying levels of self-esteem.

In the final study reported below, these concepts were operationalised into a questionnaire to enable them to be inter-related and also to show what links there were with the various components of motivation and approaches to learning.

First comparative study

Developing an inventory to measure school motivation

Once the basic theory had been derived from the interviews, Kozeki developed inventory scales to assess each of the hypothesized dimensions, and to check quantitatively the existence of separate motivational dimensions. Items were written to cover the behaviour and attitudes which were considered to be expressions of the nine dimensions. Each item was carefully checked with pupils of varying ages to ensure that it was appropriately colloquial, and that the meaning given to it by the pupils coincided with the intended meaning. This process resulted in a 100-item Likert-type inventory with five-response format which was then tried out in several Central European countries. In those studies, factor analyses indicated that within the school setting, over an age range of 8 to 20, it seemed possible that the nine motives could be simplified to six, two within

each domain (see Kozeki, 1985).

The first comparative study between Britain and Hungary involved the selection from Kozeki's 100-item Likert-type inventory of the 60 items which defined the categories most clearly. These were translated into English to form a *School Motivation Inventory*. It was decided to retain all nine sub-scales from the theoretical structure, at least at this first stage of the comparison between the two countries. The English version was translated back into Hungarian and adjustments made to ensure equivalence between the two versions. The direct translations of each item were carefully discussed to make them colloquial and to ensure that the meaning was equivalent in the two versions. The items were then discussed with school pupils in each country to avoid any ambiguity in wording and to ensure that they were fully intelligible to the age groups involved. Where changes were necessary again equivalence between versions was carefully checked.

This lengthy procedure is essential where comparisons in different languages of what is supposed to be the same scale are being attempted. Simple translation can leave important differences in meaning or in linguistic 'feel' when being interpreted by the respondents in the different countries. Then the findings could not be compared with any confidence. A full description of such a procedure can be found in a study reported by Diaz (1984).

Method

The main purpose of this first study was to obtain empirical verification of the motives described in Kozeki's theory and to compare the factor structures found in the two contrasting educational and social systems. The *School Motivation Inventory* was given to samples of 365 British and 800 Hungarian secondary school pupils. The samples were drawn from four British and three Hungarian schools chosen to reflect the range of pupil intakes typical of each country.

Results

Item analyses were used to test the dimensionality of the inventory through a series of factor analyses using separate sub-groups to test the stability of the solutions (Kozeki & Entwistle, 1984). There proved to be clear evidence of up to eight distinguisable but related factors, closely allied to the nine motives hypothesized by Kozeki. The factors obtained, and summarised in Table 3 overleaf , proved to be virtually identical between countries, which can be taken as important evidence in considering the psychological 'reality' of these dimensions.

The item analyses also enabled further refinement of the scales to be carried out. The British analyses, in particular, suggested that an additional scale might be useful. It was found that there was evidence of a negative form of motivation, not anticipated in the theory, which was rooted in a resentment of, or a reaction against, the perception of adult pressure in relation to school work. It was decided to include this additional dimension - adult pressure - in the next comparative study.

Table 3 Summary of Factor Analyses of School Motivation Items
(from Kozeki and Entwistle, 1984)

Motive and Extension of Description from Factor		Sub-Groups Factor Identified In British			Hungarian		
		Total	Boys	Girls	Total	Boys	Girls
Warmth	in parental relations	•		•	•	•	•
Identification	with teachers & school acceptance	•	•	•			
Sociability	with peers				••	•	•
Independence	and self-confidence		•	••	•		
Competence	through working hard to seek knowledge	•	•	•		•	•
Interest	in and satisfaction with school work	•			•	••	•
Trust							
Compliance	with authority	•	•	•	•	••	•
Responsibility	for own actions	•	•	•			

Second comparative study

Developing an inventory to measure orientations to studying

This second study brought together the concepts describing school motivation with the research on learning styles and approaches. The intention here was to explore the applicability of the additional dimensions to school age samples, to investigate the relationships between the two sets of scales, and again to make comparisons between the two countries. The *School Motivation Inventory* was already available, and to it was added the scale of 'adult pressure' mentioned above. It was also necessary to convert the student version of the *Approaches to Studying Inventory* to an equivalent 60-item form which could be used in schools, and then to develop a Hungarian version.

Again a careful process of adjustment and translation was carried out, with further pilot studies to ensure that the items were intelligible to the age groups with which they would be used. The resulting *School and School Work Inventory* contained a first section containing ten sub-scales describing aspects of school motivation, while the second section had a further ten sub-scales which covered academic motivation as well as learning approaches and styles (see Table 2 above).

Method

This combined inventory was given to samples of 614 British and 579 Hungarian pupils from four secondary schools in each country and drawing on two age groups - 13 to 14 and 15 to 17 years.

Results

Item analyses were again used to confirm the dimensionality of the approaches and styles, and these closely followed the results previously reported among students. The main analyses, however, used the sub-scale scores to test relationships first among the ten new sub-scales, and then among the complete set of twenty scales, to investigate the relationships between the two distinct conceptualisations of motivation, and between both of these and learning styles and approaches to studying.

Factor analyses of academic motivation and approaches to studying

Table 4 presents the factor analysis of the sub-scales of approaches and styles together with their associated motivations. The SCSS program was used (Nie et al, 1980), selecting the principal axes analysis followed by oblique rotation (with delta set at zero). An eigen value of one was used as the main criterion for extracting factors, and over repeated factor analyses carried out with sub-groups, the three factor solution proved to be the most stable and that is reported here.

Table 4 Factor Loadings on Subscales of Orientations to Studying
(from Entwistle,1988)

	British Schools			Hungarian Schools		
	I	II	III	I	II	III
Meaning Orientation						
Deep Approach	53		75	54		87
Holist Style	62			57		
Intrinsic Motivation	53		61	53		62
Reproducing Orientation						
Surface Approach		71			81	
Serialist Style	47	46			55	
Fear of Failure		61			58	
Instrumental Motivation		45			62	
Achieving Orientation						
Strategic Approach	71		34	70		36
Hope for Success	35		32		30	
Conscientiousness	85		43	88		38

Note. Decimal points and loadings below .30 omitted.
Sample sizes and variance extracted 614 and 60.2 % (Britain); 579 and 63.7 % (Hungary)

Again there was a close similarity between the factor patterns in the two countries. Factor I is similar to the achieving orientation with high loadings on 'strategic approach' and 'conscientiousness' and a lower loading on 'hope for success', but it also has substantial loadings on 'deep approach', 'intrinsic motivation' and 'serialist style'. Factor II is the reproducing orientation showing the link already established among university students between a surface approach and both fear of failure and an instrumental or narrowly vocational form of motivation. Factor III is meaning orientation, bringing together deep approach and holist style with intrinsic motivation; this also showed loadings on the main defining scales for Factor I. Although the separation between factors is not as clear-cut as with some of the student samples, nevertheless the clear link between approaches to learning

and contrasting forms of motivation has now been established at school level. The only exception is that 'hope for success' does not underpin the strategic approach in the Hungarian sample, where it is within the reproducing orientation.

Factor analyses of the subscales of the combined inventory

The results of applying the same analytic techniques mentioned in the previous section to the complete set of 20 sub-scales produced five main factors which have been described elsewhere (Entwistle & Kozeki,1985). It had been anticipated that there might be interesting overlaps between the two sets of scales suggesting ways forward in the overall conceptualisation of school motivation, but in practice the two sets of scales remained mainly separate. The three domains in Kozeki's structure tended to merge in these analyses pulling in with them varying individual sub-scales from the approaches and styles section of the inventory.

On the whole this analysis did not extend the information obtained from the analyses of the two parts of the inventory taken separately. It was, in fact, more illuminating to look separately at the individual relationships between each measure of motivation and the three distinctive approaches to learning. These product-moment correlation coefficients are shown in Table 5, grouped to show the distinctive patterns of relationship in order of the strength of the relationships with approaches to learning.

Table 5 Relationships between Learning Approaches and Motivation
(from Entwistle and Kozeki,1988)

	Approaches to Learning					
Motivation	**Deep**		**Surface**		**Strategic**	
	Brit	**Hung**	**Brit**	**Hung**	**Brit**	**Hung**
Intrinsic motivation	54	58	-17	-10	39	40
Interest	46	47	-16		36	42
Competence	45	45	-19	-13	46	46
Independence	36	34	-23	-39	26	16
Instrumental motivation	-21	-34	43	47	-10	-15
Fear of Failure	08		30	52	11	
Conscientiousness	45	47		10	60	62
Compliance	40	36	-11		43	49
Responsibility	28	26		-10	34	36
Identification	33	27	-15	09	29	39
Warmth	29	25			29	33
Hope for Success	29	25		23	26	22
Sociability	24	19			18	20

Note. Decimal points and correlations below .08 ($p \leq .05$) omitted.
Sample sizes: 614 (Britain) and 579 (Hungary).

Four distinct patterns of relationship can be seen. The first four sub-scales, led by 'intrinsic motivation', show strong positive relationships with both deep and strategic approaches with the higher values being with the deep approach: they also show negative relationships with surface approach. In the second group, 'instrumental motivation' has strong positive

correlations with surface approach and negative correlations with the other two approaches, while 'fear of failure' is distinguished mainly by its postive correlations with surface approach. The third group, starting with 'conscientiousness', has its highest correlations with strategic approach and generally high correlations also with deep approach: it shows weak relationships with surface approach. The final group, led by 'identification', shows lower all round correlations but with correlations with deep and strategic being more consistent than with surface.

Conceptualisation and dimensionality of school motivation

We are now in a position to review the contrasting conceptualisations of motivation investigated in these two comparative studies and to bring together the correlational and factor analyses reported above with the work previously carried out by Chiu (1967) in the United States.

The two conceptualisations of school and academic motivation introduced in this study show two main distinctive features. The Hungarian conceptualisation seeks to point up the importance of motivations which draw from the affective and the moral, as well as the cognitive, domains. There has been a tendency in earlier research on school motivation to ignore the importance of aspects of schooling which were non-cognitive. It is important to redress this balance by recognising the important sources of reinforcement which involve emotional reactions related to inter-personal relationships and also to the feelings associated with the moral domain of internalised rules about socially approved behaviour.

The British conceptualisation drew attention to the fact that differing forms of motivation are likely to induce differing approaches to learning and studying. The effort put into school work may be directly related to the level of motivation, but the quality of the learning carried out is dependent on the specific learning processes brought to bear on the task. Effort may be put into rote learning, or into seeking understanding, depending on the predominant motivation aroused.

The two comparative studies showed that, separately, the conceptualisations were supported by empirical relationships, and that the pattern of relationships was remarkably similar in two very different educational and social systems. Taken in conjunction with the earlier work, this similarity may be taken as suggesting that the scales and their underlying categories and concepts have some psychological and educational reality.

The results of the analyses of the first study showed that up to eight separate dimensions underlying school motivation could be identified. The second study introduced additional motivational dimensions thought to be related to contrasting approaches to studying, and the individual relationships between all these differing forms of motivation and approaches to studying have been reported. It is now possible to draw together these differing dimensions of motivation with the earlier factor analytic study by Chiu. At least at the descriptive level there are similarities and Table 6 can be seen as an attempt to map the area of school and academic motivation as described from this series of inventory studies. The positions have been determined from the analyses shown in Table 5, but also from conceptual considerations. Thus 'hope for success' has been placed

within the cognitive domain on conceptual grounds, although its pattern of correlations leaves its position rather unclear.

Table 6 Comparison of Factor Analyses of School Motivation

Chiu factors	Kozeki factors	Entwistle scales
Affective		
	Warm parental relationships	
	Identification with teachers	
Need for social recognition	Cooperation with peers	
Cognitive		
	Interest in schoolwork	Intrinsic motivation
Curiosity		
	Independence and self-confidence	Hope for success
Positive orientation to school learning	Competence through seeking knowledge	
		Instrumental motivation
Failure avoidance		
		Fear of failure
Moral		
	Responsibility for own actions	
		Conscientiousness
Conformity	Compliance with authority	

Third comparative study

Developing an instrument to measure attributions and feelings

In the literature, the measurement of attributions is typically carried out by describing an experience of success or failure in a specific context and asking students to reflect on the reasons why they had obtained that result (Elig & Frieze, 1980). There are, however, different ways of asking these questions which may well affect the results obtained. Typically the question asked is of a general kind. " When you get a really bad result from work at school, why do you think that is ? " The use of such a general statement discourages the student from relating reactions to a real incident and may lead to an idealised response. Using a specific incident avoids that danger but creates another problem. The particular incident recalled may have been atypical and so will provide little information about the student's general pattern of attributions.

In this study it was decided to develop a measure which represented a compromise between specificity and generality. First, a series of three situations were described and, within each of these, experiences of success and failure were presented separately. It would thus be possible to investigate the degree of overlap in attributions made in these different situations. But the introductory rubric invited the student to choose a

typical incident. As the wording of the instructions is important, it is given here in full

> **Here, we want to explore the different views and feelings that young people have about situations which they meet at school and in the home. We want you to think back to each of the situations described below. In each case, concentrate on *one* such situation which you remember very clearly and which was typical of how you usually feel in such situations. Then describe what you thought and how you felt by circling the code number which best describes how you usually feel in such situations.**

The first situation described was located in the home (being praised or criticised for doing a job), while the remaining two situations were of success and failure in the school (higher or lower marks; doing better or worse than expected in exam). After each of the six situations, students were asked to respond to a series of statements about their attributions by indicating whether it was 'true', 'partly true', or 'not true'. These statements had been written so that there was one for each of the six hypothesized forms of attribution described earlier. Two additional statements covered additional logical reactions which were considered worth exploring further. These covered, as an internal attribution, 'acceptance of outcome' ("I really deserved it"), and as an external attribution 'availability of help' ("I had got the right help"). Students were also invited to add their own statements.

After the attribution statements, students were asked to respond to four statements about their feelings, two of which were directed internally (e.g., in relation to failure, 'worried and concerned' or 'guilty and ashamed') and two which were directed externally ('angry and provoked' or 'bitter and resentful'). These were based, in part, on the ideas of Weiner (1983b).

The instrument, entitled for the students' benefit *What Happens at School and at Home*, was then then translated into Hungarian.

Method

The instrument described above was used in conjunction with the inventory described in the second study (with slightly modified wording) and the Self-Esteem Scale devised by Coopersmith (1959) in the form appropriate to this age group. Teachers were also asked to provide ratings of school attainment, effort, and anxiety. The three instruments were given in two separate administrations to a sample of 158 students drawn from five British secondary schools (age range 13 - 15 years) and to a comparable sample of 158 Hungarian students, drawn from three schools.

Results

Analyses were again carried out in several stages. First, factor analyses of the items in *What Happens at School and at Home* were carried out to determine the consistency across situations of attributions and feelings. Reactions to success and failure were, of course, analysed separately. These analyses showed sufficient consistency across situation to justify the creation of twelve scales covering the eight attributions and four sets of feelings. These twelve scales were then factor analysed to indicate the extent to which external attributions and feelings were separable from internal ones. The factor structure of the total set of variables included in this study was then investigated to discover whether there was any overlap between the various conceptualisations described above. Correlation analysis

was used to clarify the pattern of relationships found in the factor analysis, and, finally, the mean scores on the various scales were compared between the two countries.

Factor analysis of *What Happens at School and at Home*

The principal axes analysis from SCSS (Nie et al,1980) was used, with rotation to oblique simple structure (with delta set at zero). Using the criterion of eigen values greater than unity, four factors were extracted from the whole sample. Similar patterns were also found within each country. Factor loadings are shown in Table 7 separately for success and failure.

Table 7 Factor Loadings on Attributions and Feelings (Whole Sample)

	Success				Failure			
	I	II	III	IV	I	II	III	IV
Internal Attributions								
Ability	82				65			
Effort	54	40			77			
Strategy	47			-46	76			
Acceptance	80					65		
Inner-Directed Feelings								
Happy / Worried	40	62				74		
Proud / Ashamed	44	46				78		
External Attributions								
Luck			82				72	
Task Easiness/Difficulty				75	-48		61	
Generosity/Unfairness			83				67	-36
Help Provided/Needed		-40		66	-33		60	
Outer-Directed Feelings								
Relieved/Angry		76						87
Fortunate/Resentful		51	-63			39		57

Note. Decimal points and loadings below .30 omitted.
Sample size 316, variance extracted: 62.0% (Success); 60.9% (Failure).

For success, the first factor brought together all the internal attributions and associated feelings, although the second factor repeated those feelings together with the external feelings. The external attributions were split between two factors with luck and unfairness being in the third factor and task easiness and help provided being in the fourth factor. The negative loading on feelings of being fortunate is difficult to interpret in the third factor. For failure, the three main internal attributions form the first factor together with lower loadings which deny attributions to task difficulty or lack of help. Acceptance of failure is associated with feelings of being worried, ashamed and, to a less extent, resentful. The third factor links all the external attributions strongly together, while the final factor contains both the externally directed feelings.

All in all, these analyses tend to support the division into internal and external attributions with feelings being partly linked to attributions and partly separate. There is certainly justification for using four pooled scores.

Factor analysis of complete set of scales

The next analyses examined the factors produced when the complete set of variables from all three conceptualisations were brought together with the teachers' ratings as marker variables. The six factors produced from the overall sample are shown in Table 8, again with similar patterns being found in each country.

Table 8 Factor Loadings from the Combined Set of Variables for Whole Sample

	I	II	III	IV	V	VI
Motivation Domains						
Affective	78					
Cognitive	78					
Moral	82					
Study Orientations						
Meaning	72					
Reproducing		61		30	-40	
Achieving	53		46			26
Self-Esteem	27	-59				
Attributions of Success						
Internal			79			
External				-68		
Feelings of Success						
Inner-Directed			83			
Outer-Directed				64		
Attributions of Failure						
Internal		76				-27
External	27			-64		
Feelings of Failure						
Inner-Directed	31	62	26			
Outer-Directed				69		
Teachers Ratings (Marker variables)						
Anxiety						89
Effort				-19	82	29
Attainment	27			-12	81	-19

Note. Decimal points and loadings below .25 omitted, except from marker variables (N = 316). Variance extracted by principal components analysis with eigen values above one = 66.3 %

The first factor brings together the motivational components related to the most effective approaches to studying and to high academic performance. There is a suggestion that this pattern of motivation is associated with external attributions of failure, but inner-directed feelings. The second factor picks up the reproducing orientation to studying and relates that to low self-esteem, and internal attributions and feelings related to failure, but not to particularly low actual performance. Factor three associates achievement orientation with internal attributions and feelings related to success. Factor four indicates that outer-directed feelings were linked with a lack of external attributions and that teachers perceived these pupils as not putting much effort into their work. Factor five is created by the strong

intercorrelation between the teachers' ratings of effort and attainment, while the final factor is defined mainly by the rating of anxiety with some indication that it is associated with high effort, but also with low levels of attainment and a lack of internal attributions of failure.

As there are some intriguing patterns of factor loadings, the five factor solutions emerging from the separate analyses of the British and Hungarian data are also reported in Table 9.

Table 9 Factor Loadings from the Combined Set of Variables in Britain and Hungary separately

	British Schools					Hungarian Schools				
	I	II	III	IV	V	I	II	III	IV	V
Motivation Domains										
Affective	69			33		61			23	
Cognitive	75					72				
Moral	76					69				
Study Orientations										
Meaning	74					78				
Reproducing		61		-44			57		-44	
Achieving	78					71				
Self-Esteem	06	-74				40	-48			
Attributions of Success										
Internal			69					69		
External		-17	-71		-08		-46	-21		-37
Feelings of Success										
Inner-Directed	40		65			26		81		
Outer-Directed	12		65			-30		73		
Attributions of Failure										
Internal		63	36				81	14		
External	42	-12	-70	34	-01	20	-31	-12	15	-60
Feelings of Failure										
Inner-Directed	45	36	36			26	71	22		
Outer-Directed	12		37	-40	29	-30		40	01	52
Teachers Ratings										
Anxiety					92					66
Effort				83					83	
Attainment	25			80		05			86	

Note. Decimal points and loadings below .30 omitted, except where comparisons are needed. Sample sizes and variance extracted using principal components analyses and eigen values > 1 : 158 and 62.9 % (Britain); 158 and 60.5 % (Hungary).

Again the main impression from the separate analyses is the strong similarity in the patterns in spite of the rather small sample sizes. There are differences, but mainly in the size of the loading, rather than any clear change in the pattern. It seems that the highly motivated pattern shown in Factor I is associated with high teachers' ratings only in Britain. In Hungary it is linked to high self-esteem, but apparently not the teacher's. The interesting pattern which suggests that highly motivated pupils make

external attributions of failure, but show inner-directed feelings of both success and failure, is found in both samples, but more strongly in the British sample, where it is echoed in the main attainment factor (IV) and linked with affective motives and low scores on reproducing orientation. The weaker pattern among Hungarian pupils is strengthened through the negative loading on outer-directed feelings.

In both samples outer-directed feelings of failure are associated with high anxiety. In the Hungarian sample, anxiety is brought together with a low level of external attributions.

To supplement this analysis, correlations of attributions and feelings with the other variables were examined. Table 10 presents these results for the whole sample, but with correlations with attainment being presented separately for each country.

Table 10 Correlations between attributions and other variables

	Motivation Aff.	Cog.	Mor.	Study Orient Mn.	Rpr.	Ach.	Self Est.	Attain. Br.	Hun
Attributions of Success									
Internal		21	19	21		28			
External					-32			24	
Feelings of Success									
Inner-Directed		19			19		31		
Outer-Directed			17	16	28			-16	
Attributions of Failure									
Internal					31		-23		
External	26	21	21		-30		26	33	33
Feelings of Failure									
Inner-Directed			22	26	30	27			
Outer-Directed					24			-18	-16
Attainment (Britain)	36	40	33		-39	17	18		
(Hungary)	24	22	23		-37		31		

Note. Decimal points and correlations below .16 ($p \leq .05$) omitted. Sample size 316, except for correlations with attainment which are given for each country separately (N=158).

The correlations do, of course, reflect the patterns already shown in the factor analysis, but allow additional relationships to be clarified. The correlations suggest that high levels of cognitive and moral motivation, together with meaning and achievement orientations, are associated with internal attributions of success, as well as with the external attributions and inner-directed feelings of failure already identified in the factor analysis. Affective motivation appears to be solely related to external attributions of failure.

It may be of interest to note that there are fewer significant correlations between attributions or feelings and attainment than there are with the scales of school motivation and study orientations. External attribution of failure is the only scale to correlate with attainment in both Britain and Hungary. In Britain, external attributions of both success and

failure are associated with high attainment, which does not accord with arguments about the importance of encouraging students to adopt internal attributions - to take responsibility for the outcomes of their efforts. The low correlations of attainment with attributions are, however, in line with similar findings reported by Covington and Omelich (1979), although their interpretation has been subject to dispute (Weiner, 1983) and subsequent defence (Covington and Omelich, 1984).

Analysis of mean scores

This article is concerned mainly with the relationships between the various forms of motivation described by the inventory scales, but the differences in mean scores between boys and girls and between the two countries is worth reporting. Differences in motivation and approaches to learning have already been reported (Kozeki & Entwistle, 1984; Entwistle & Kozeki, 1985). They are summarized in Table 11, together with the significant differences in means identified in attributions and feelings.

Table 11 Significant Differences in Mean Scores between Britain and Hungary

Britain Higher	Hungary Higher	Boys Higher	Girls Higher
Identification with teachers	Intrinsic Motivation		Affective Motivation
Surface Approach	Deep Approach		Moral Motivation
Serialist Style	Holist Style		
Attributions and Feelings Related to Success			
Proud and Satisfied	Acceptance		
Luck	Easiness of Task		
Generosity	Given Help		
	Lucky and Fortunate		
Attributions and Feelings Related to Failure			
Lack of Effort	Acceptance	Acceptance (Britain)	
Bad Luck	Task Difficulty	Task Difficulty (Hungary)	
	Guilty and Ashamed (Girls)		
	Bitter and Resentful		Bitter and Resentful (Hungary)

In brief, those analyses showed interesting differences between sub-groups. For example, in both Hungary and Britain, girls were found to have higher scores in the affective motivational domain, indicating greater warmth (relationships with parents) and sociability (with peers). They also had higher scores than boys in the moral domain. Differences between the countries emerged mainly in terms of interest in schoolwork and learning styles and approaches. The Hungarian pupils showed more interest in work, but also less identification with teachers than the British pupils. They adopted deep approaches to learning, and yet their high scores on holist

styles suggested that the learning carried out might not be firmly grounded in detailed knowledge. The British pupils showed the opposite pattern with high scores on surface approaches implying learning which was syllabus bound, but the high serialist scores indicating that the knowledge obtained, though narrowly focussed, was well supported by detailed knowledge. Analyses of individual items supported these impressions. British pupils were prone to rely on remembering facts and to adopt a rigid procedural approach to learning, while Hungarian pupils were more likely to try to relate their learning to real life and to enjoy working collaboratively. This contrast in approaches to learning may well be a product of the difference in the systems of assessment. Britain relies heavily on formal external examinations at age 16, while Hungarian pupils experience only informal assessment by their own teachers until age 18.

In explaining the causes of success, Hungarian pupils were more likely to accept it or to attribute it to the easiness of the task or to outside help and to feel lucky and fortunate about it. British pupils thought themselves lucky or considered that the teacher or parent had been generous, and felt relieved about it. British pupils attributed failure to a lack of effort or to bad luck, but did not have particularly strong feelings about it. Hungarian pupils were more likely to believe that they deserved failure (particularly the girls) or to attribute it to task difficulty. They also had much stronger feelings about failure and the girls, particularly, felt bitter and resentful.

Overall, pupils in both countries were more likely to attribute success to internal causes - their own effort and strategy - or externally to the generosity of the other (in Britain). Failure in both countries was most often attributed to external causes, particularly, unfairness and bad luck. British pupils thought a lack of effort was also an important reason for failure, but the Hungarians were much less likely to mention any of the internal causes.

Relationships between motivation, attributions and feelings

The first two studies were designed to investigate the dimensionality of school motivation drawing on two contrasting conceptualisations. The set of categories derived from the analyses confirmed, but extended, previous work on the factor structure of academic motivation. Other analyses showed that the strong relationship between some forms of motivation and the way students approach learning and studying applies to school level as well as to higher education. It was also shown that approaches differ significantly in differing educational systems. One initial intention was to integrate the two conceptualisations, but there was insufficient overlap to achieve this.

Previous work suggested that there would also be separation between explanations of effort derived from attribution theory and from trait motivation. Given that expectation, perhaps the overlap, although not large, is of interest. The exploration of attributions in relation to associated feelings may also advance our understanding of a complex phenomenon. Perhaps the finding that is most striking is that the cognitive and moral components of school motivation are associated with internal attributions and feelings of success, external attributions of failure and inner-directed feelings of failure.

A tendency for external attributions of failure to be associated with

inner-directed feelings among well motivated pupils could be seen in all three factor analyses. In contrast, pupils with low self- esteem, adopting reproductive learning strategies, attributed their failure to themselves and directed their feelings inwards. Anxious pupils seemed less likely to make external attributions and to direct the feelings associated with failure outwards in anger and resentment. The use of attributions as a protective device against lowered self-esteem seems to imply that external attributions of failure are being used by academically successful pupils rather as Covington (1983) suggests excuses are used by the less able. But the inner-directed feelings of concern and guilt surely indicate that there must also, perhaps at a less conscious level, have been some recognition of personal responsibility and thus of internal causality.

The findings reported here suggest that the mechanisms of attribution may be operating in more complex ways than was previously thought, with the evoked attributions serving to deflect blame away from self-confident individuals who nevertheless accept ultimate responsibility. The findings also suggest that pupils of low self-esteem are likely to have less effective protective devices available, as they make strong internal attributions of failure, as well as experiencing the inner-directed feelings of failure. Such reasoning about the mechanisms being used by pupils is, of course, highly speculative on the basis of the evidence available in this study, but it does suggest a fruitful line for future research to explore.

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